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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MOORE, KARLA A	
ART UNIT	**PAPER NUMBER**
1763	

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

MHM

Office Action Summary	Application No.	Applicant(s)	
	09/894,034	HA ET AL.	
	Examiner	Art Unit	
	Karla Moore	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *1104* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 28 and 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,595,792 to Kashiwaya et al.

3. Kashiwaya et al. disclose a continuous processing apparatus capable of a plasma polymerization which comprises: a source roller (43) for unwinding a metallic substrate (column 10, rows 45-48); at least one vertical deposition chamber (30) for continuously receiving the metallic substrate from the source roller, said vertical chamber having at least one gas inlet (Figure 2, 25; column 4, row 67 through column 5, row 2) for introducing a plasma gas into the vertical chamber and having at least one tension roller (46, 48 and 49; column 6, rows 33-45 and column 8, rows 29-33) operatively connected to the source roller for directing the metallic substrate through the chamber whole maintaining the predetermined tension; a terminal roller (44) operatively connected to the tension roller for receiving the metallic substrate from the vertical chamber; at least one electrode (61; column 7, rows 27-39) disposed within the vertical deposition chamber adjacent to the metallic substrate; and an electrical power supply (63; column 7, rows 27-39) electrically connected to said metallic substrate for generating electric current, wherein, upon generation of electric current by the power supply, a plasma for deposition upon the surface of the metallic substrate is formed by the plasma gas together with the electrode and the metallic substrate which serves as a counter electrode (column 6, rows 46-55).

4. Examiner recognizes that the deposition chamber in Kashiwaya et al. is not disclosed as a "polymerization chamber"; however, the inclusion of the designation "polymerization" is viewed as an intended use. If the appropriate processing materials were selected the chamber of Kashiwaya et al. would be capable of a polymerization process. The courts have ruled that a claim containing a "recitation

with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). The courts have also ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

5. With respect to claim 31, said apparatus further comprises a horizontal chamber (31a and 31b) through which the metallic substrate is directed.

6. With respect to claim 32, said at least one vertical deposition chamber includes at least one gas outlet (32) for removing plasma gas from the vertical chamber which is introduced by said at least one gas inlet, wherein the plasma gas is directed to flow from the gas inlet to the gas outlet in the same direction or in the opposite direction of the metallic substrate. The substrate travels in an upward and then in a downward direction (see Figure 1). The gas flows in an upward direction (see Figure 2). Thus, gas and the substrate are directed in the same direction and in opposite directions.

7. With respect to claim 33, said at least one vertical deposition chamber includes at least one gas outlet for removing plasma gas from the vertical chamber which is introduced by said at least one gas inlet, wherein the plasma gas is directed to flow from the gas inlet to the gas outlet perpendicular to the direction of the metallic substrate. Initially, the gas that enters inlet (25) flows perpendicular to the direction of the substrate (see Figure 2).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 29-30 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable Kashiwaya et al. as applied to claims 28 and 31-33, in view of U.S. Patent No. 4,437,324 to Sando et al.

11. With respect to claim 29, Kashiwaya et al. disclose the invention substantially as claimed and as described above.

12. However, Kashiwaya et al. fail to teach the vertical deposition chamber includes two electrodes disposed so as to face opposite sides of the metallic substrate.

13. Sando et al. teach the use of a pair of electrodes disposed so as to face opposite sides of a substrate for the purpose of producing a high frequency electric wave to activate a gas and further elevate the efficiency of a treatment for processing both sides of a substrate (column 3, rows 8-14).

14. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided electrodes disposed so as to face opposite sides of a substrate in Kashiwaya et al. in order to produce a high frequency wave to activate gas and further elevate the efficiency of a treatment for processing both sides of a substrate as taught by Sando et al.

15. With respect to claims 30 and 34, Kashiwaya et al. disclose the invention substantially as claimed and as described above.

16. However, Kashiwaya et al. fail to disclose the apparatus includes two vertical deposition chambers disposed adjacent to each other and four or more tension rollers operatively connected to the source roller and the terminal roller, which direct the metallic substrate sequentially into a lower portion of a first vertical deposition chamber, up to a higher portion of a second vertical deposition chamber, into an

adjacent higher portion of a second deposition chamber, and down to a lower portion of said second vertical deposition chamber.

17. Sando et al. disclose constructing an apparatus comprising two vertical deposition chambers separated by a horizontal chamber that is capable of transporting a substrate as claimed for the purpose of transporting the substrate in a zigzag pattern that prolongs treatment time (column 4, rows 1-11). A plurality of rollers (7; column 2, rows 26-29) is provided for uiding and maintaining tension of the substrate.

18. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a deposition apparatus comprising two vertical deposition chambers separated by a horizontal chamber that is capable of transporting a substrate as claimed in Kashiwaya et al. in order to transport a substrate in a zigzag pattern that prolongs treatment time as taught by Sando et al.

19. Claims 35-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,595,792 to Kashiwaya et al. in view of U.S. Patent No. 4,437,324 to Sando et al.

20. Kashiwaya et al. disclose a continuous processing apparatus capable of a plasma polymerization substantially as claimed and comprising: a source roller (43) for unwinding a metallic substrate (column 10, rows 45-48); a first vertical deposition chamber (30), wherein the first vertical chamber has at least two tension rollers (46, 48 and 49; column 6, rows 33-45 and column 8, rows 29-33) operatively connected to the source roller for receiving therein and directing a metallic substrate through the first chamber while maintaining a predetermined tension; a terminal roller (44) for winding the metallic substrate; electrodes (61; column 7, rows 27-39) disposed within the vertical deposition chamber so as to oppose the surfaces of the metallic substrate; a gas inlet (Figure 2, 25; column 4, row 67 through column 5, row 2) for introducing a plasma gas, and a gas outlet (32) for removing plasma gas disposed in said vertical deposition chamber, wherein the gas is directed to flow in a parallel or anti-parallel direction with respect to the metallic substrate direction, or is directed to flow in a direction perpendicular to the direction of the metallic substrate; and an electrical power supply (63; column 7, rows 27-39) electrically connected

to said metallic substrate for generating electric current, wherein, upon generation of electric current by the power supply, a plasma for deposition upon the surface of the metallic substrate is formed by the plasma gas together with the electrode and the metallic substrate which serves as a counter electrode (column 6, rows 46-55). With respect to the direction of gas flow and the direction of movement of the substrate, the substrate travels in an upward direction and then in a downward direction (see Figure 1). The gas flows in an upward direction (see Figure 2). Thus, gas and the substrate are directed in the same direction and in opposite directions. Also, initially, the gas that enters inlet (25) flows perpendicular to the direction of the substrate (see Figure 2).

21. Examiner recognizes that the deposition chamber in Kashiwaya et al. is not disclosed as a "polymerization chamber"; however, the inclusion of the designation "polymerization" is viewed as an intended use. If the appropriate processing materials were selected the chamber of Kashiwaya et al. would be capable of a polymerization process. The courts have ruled that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). The courts have also ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

22. With respect to the number of gas inlets and outlets provided, the courts have ruled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). In the instant case, one of ordinary skill in the art would immediately recognize that by providing a plurality of inlets and outlets, a larger quantity of gas could be supplied in a shorter period of time and a larger amount of gas could be removed in a shorter period of time.

23. However, while Kashiwaya et al. is substantially similar, the reference fails to disclose more than two vertical deposition chambers disposed adjacent to each other and four or more tension rollers operatively connected to the source roller and the terminal roller, which direct the metallic substrate

sequentially into a lower portion of a first vertical deposition chamber, up to a higher portion of a second vertical deposition chamber, into an adjacent higher portion of a second deposition chamber, and down to a lower portion of said second vertical deposition chamber.

24. Sando et al. disclose constructing an apparatus comprising two vertical deposition chambers separated by a horizontal chamber that is capable of transporting a substrate as claimed for the purpose of transporting the substrate in a zigzag pattern that prolongs treatment time (column 4, rows 1-11). A plurality of rollers (7; column 2, rows 26-29) is provided guiding and maintaining tension of the substrate.

25. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a deposition apparatus comprising two vertical deposition chambers separated by a horizontal chamber that is capable of transporting a substrate as claimed in Kashiwaya et al. in order to transport a substrate in a zigzag pattern that prolongs treatment time as taught by Sando et al.

26. With respect to claim 36, Kashiwaya et al. disclose the invention substantially as claimed and as described above.

27. However, Kashiwaya et al. fail to teach the vertical deposition chamber includes two electrodes disposed so as to face opposite sides of the metallic substrate.

28. Sando et al. teach the use of a pair of electrodes disposed so as to face opposite sides of a substrate for the purpose of producing a high frequency electric wave to activate a gas and further elevate the efficiency of a treatment for processing both sides of a substrate (column 3, rows 8-14).

29. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided electrodes disposed so as to face opposite sides of a substrate in Kashiwaya et al. in order to produce a high frequency wave to activate gas and further elevate the efficiency of a treatment for processing both sides of a substrate as taught by Sando et al.

30. With respect to claim 37, as noted above and illustrated in Sando et al., the apparatus may include more than two vertical chambers.

31. With respect to claim 38, the apparatus may further comprise a horizontal chamber (31a and 31b) through which the metallic substrate is directed.

32. With respect to claim 39, as described above with respect to the zigzag processing path of Sando et al. includes vertical deposition chambers disposed adjacent to each other and four or more tension rollers operatively connected to the source roller and the terminal roller, which direct the metallic substrate sequentially into a lower portion of a first vertical deposition chamber, up to a higher portion of a second vertical deposition chamber, into an adjacent higher portion of a second deposition chamber, and down to a lower portion of said second vertical deposition chamber.

Response to Arguments

33. Applicant's arguments with respect to claims 28-39 have been considered but are moot in view of the new ground(s) of rejection. The rejections have been reworked to account for the new claims and limitations. Examiner notes that contrary to Applicants remarks, one of the previous relied upon references (Kashiwaya et al.) does in fact teach an electrical power supply connected to said metallic substrate.

Conclusion

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571.272.1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karla Moore
Art Unit 1763
23 November 2004